

Mine Site Cleanup and
CERCLA,
Where do we go from here?

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Assessment Conference

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Scope of the problem

Mineral Policy Center
558,000 AMLs in 32 states

Bureau of Land Management
over 60,000 sites

USDA Forest Service
approx. 18,000 sites

EPA estimates
over 200,000 sites nationally

The numbers of AML sites is extremely large, but only a fraction create significant environmental problems. However, resolving problems at even a fraction of such large numbers is a monumental effort.

Mine sites can range from a small hand dug hole to thousands of acres of disturbed land. It is helpful to consider 4 Tiers of sites.

Tier I

Large mining sites/districts or mineral processing sites that present a significant ongoing environmental or human health threat

Tier II

Large sites that present a potential risk, or moderate sized sites presenting an ongoing risk

Tier III

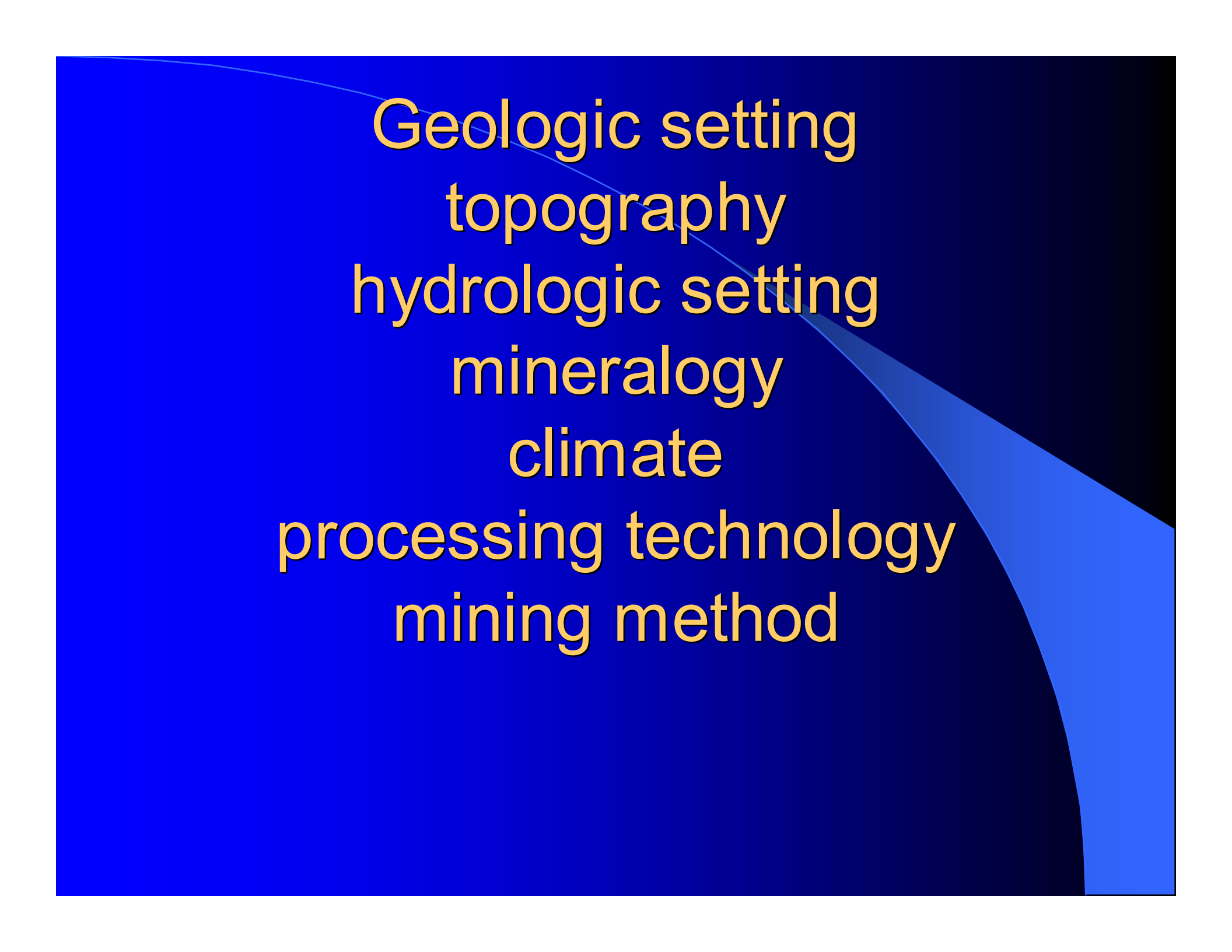
Small to moderate sized sites that cause, or have the potential to cause, minor or intermittent risks to human health or the environment in a limited geographic area

Tier IV

Sites of any size that pose an insignificant risk to human health or the environment


We have probably identified the majority of Tier I sites, but we are only beginning to address Tier II and III sites.

The risks posed by mining sites are as varied as their size. Factors influencing the potential for environmental or human health concerns include:



Geologic setting
topography
hydrologic setting
mineralogy
climate
processing technology
mining method

Past waste mgmt. practices
proximity to population centers
regulatory/compliance history
ecological setting
site geochemistry

The background is a solid blue color with a subtle gradient. A thin, light blue curved line starts from the top left and arcs towards the right side of the slide. On the right side, there is a vertical strip of a lighter blue color, creating a layered effect.

Sources of environmental
concern include the following:

This draining adit contains high levels of a number of metals. Release of this water to a nearby stream is causing violations of water quality standards.



In mine investigations
are sometimes needed to
identify methods for
collection and treatment.



In mine chemistry can be variable and sometimes clean water can be segregated to minimize the volume of water requiring treatment.



Aluminum in this mine drainage has coated the stream bottom with an amorphous precipitate.



Blowing tailings at the Holden Mine in Washington



Temporary stabilization of this tailings pond has prevented further erosion, but ARD continues to be released into the stream causing cementation of the stream bottom with iron, plus water quality standard violations for a number of other metals.



This tailings pond will require a low permeability cap to minimize leaching of contaminants into a nearby stream.



The mill structure in the center of the photo contains very high levels of metals left behind when processing ended.



Waste rock in the lower right corner is leaching acid mine drainage with low pH and high metals

Other concerns include:

explosives

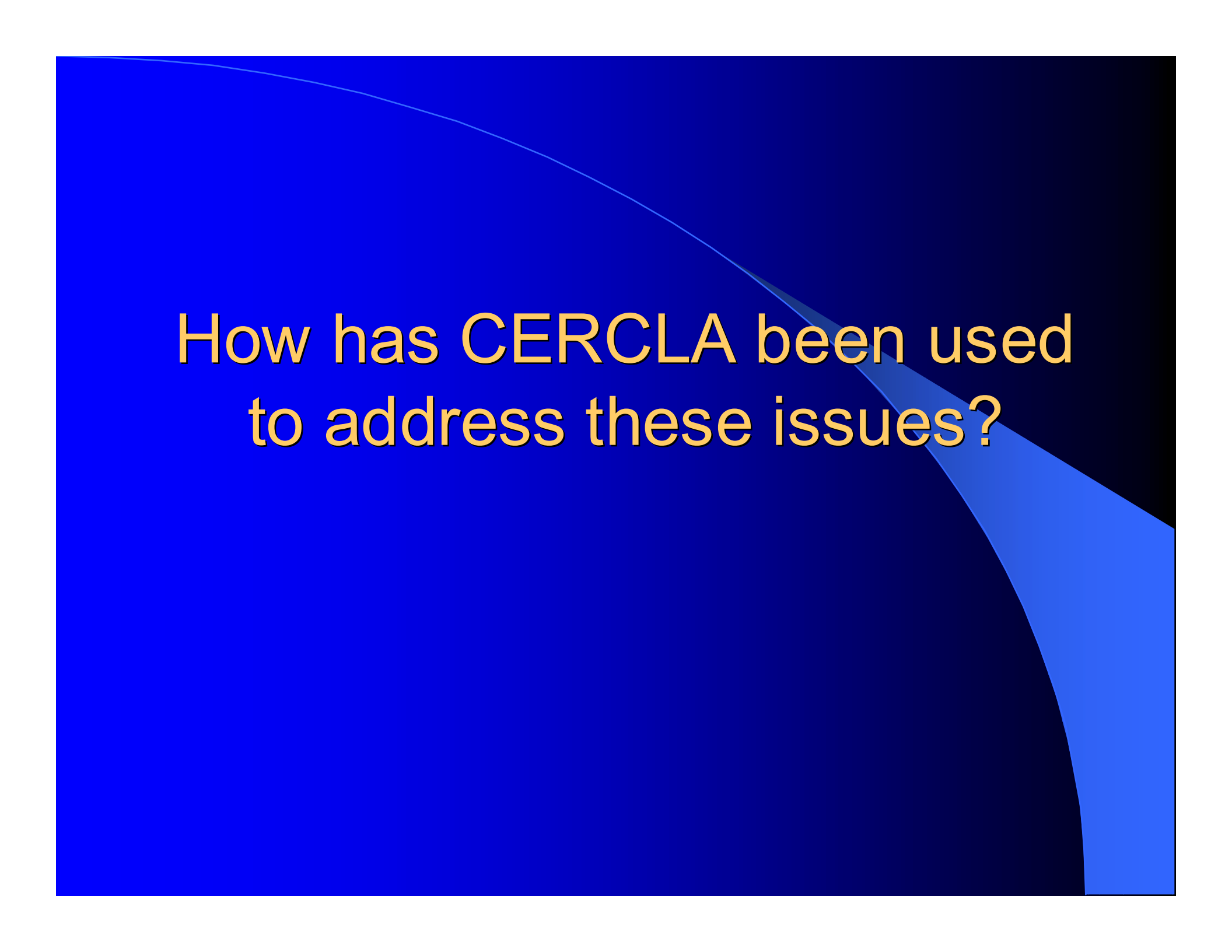
chemical reagents

lab chemicals

electrical equipment

fuel storage

maintenance facilities

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How has CERCLA been used
to address these issues?

EPA has placed nearly 70
mining and/or mineral
processing sites on the NPL
since the inception of
CERCLA

CERCLA removal actions
have been taken at hundreds
of mine or mineral processing
sites by EPA and other federal
agencies or under federal
oversight

PA/SI program resources
have been used to identify
sites for referral to other
federal agencies or states for
cleanup action.

CERCLA enforcement
authority has been used to
compel cleanup by private
parties

Although CERCLA authorities have been a powerful tool in implementing mine site cleanup EPA's Hardrock Mining Framework called for a toolbox approach to mine cleanup.

The authorities of the CWA have played a central role in addressing risks at a number of sites, but other regulatory and non-regulatory programs have also played a role.

Among them:

TSCA, RCRA, CAA
State Regulatory Programs
State Voluntary Programs
OSM reclamation programs
USACOE
FLMA programs

To date we have made great progress, but resource limitations are requiring more creative solutions as we complete actions at Tier I sites and begin cleanup of the extremely large Tier II/Tier III inventory.

EPA is focusing considerable effort on trying to prevent additional Tier I sites from being created. This includes requiring mines to be designed for closure, and insisting on adequate financial assurance to make sure the work gets done.

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What does the future hold?

Mega-site review

Public awareness

1872 Mining Law
reauthorization

Good Samaritan legislation

Until we know how the events now unfolding will influence the resources available to continue to address mine sites under CERCLA we need to make the most of our existing resources.

Nick's Top Ten

.....for making the most of
Site Assessment Resources

10

Adapt PA/SI sampling efforts
to include information needed
for preliminary mine site
characterization.

9

Partner with state and federal
agencies to share
investigation costs

8

Conduct watershed screening
PA/SIs in mining watersheds
to maximize resources

7

Work with the removal
program to combine removal
assessment and PA/SI
resources

6

Use site assessment as a
mine site prioritization tool

5

Make every effort to link the site to potential HH impacts, even if that means moving a considerable distance off-site to evaluate impacts.

4

Use field screening tools
whenever possible to
maximize coverage and
provide additional information
for priority setting

3

Don't forget enforcement tools, get private parties to conduct a portion of the site characterization activities

2

Federal agencies need to do
PA/SI work on their properties,
encourage them!

1

If it really needs to be on the NPL keep up the pressure, it is still the only game in town for some sites.

Final Thoughts

CERCLA has been a valuable tool in the past, lots of great work has been completed.

Strategic use of CERCLA tools, in conjunction with other regulatory and non-regulatory programs is essential to continued progress.

Our two biggest challenges
are preventing currently
operating and proposed mines
from requiring public
resources for reclamation and
closure, AND

..leveraging the resources that
we do have to take on the
highest priority sites.

